OIPE JC177
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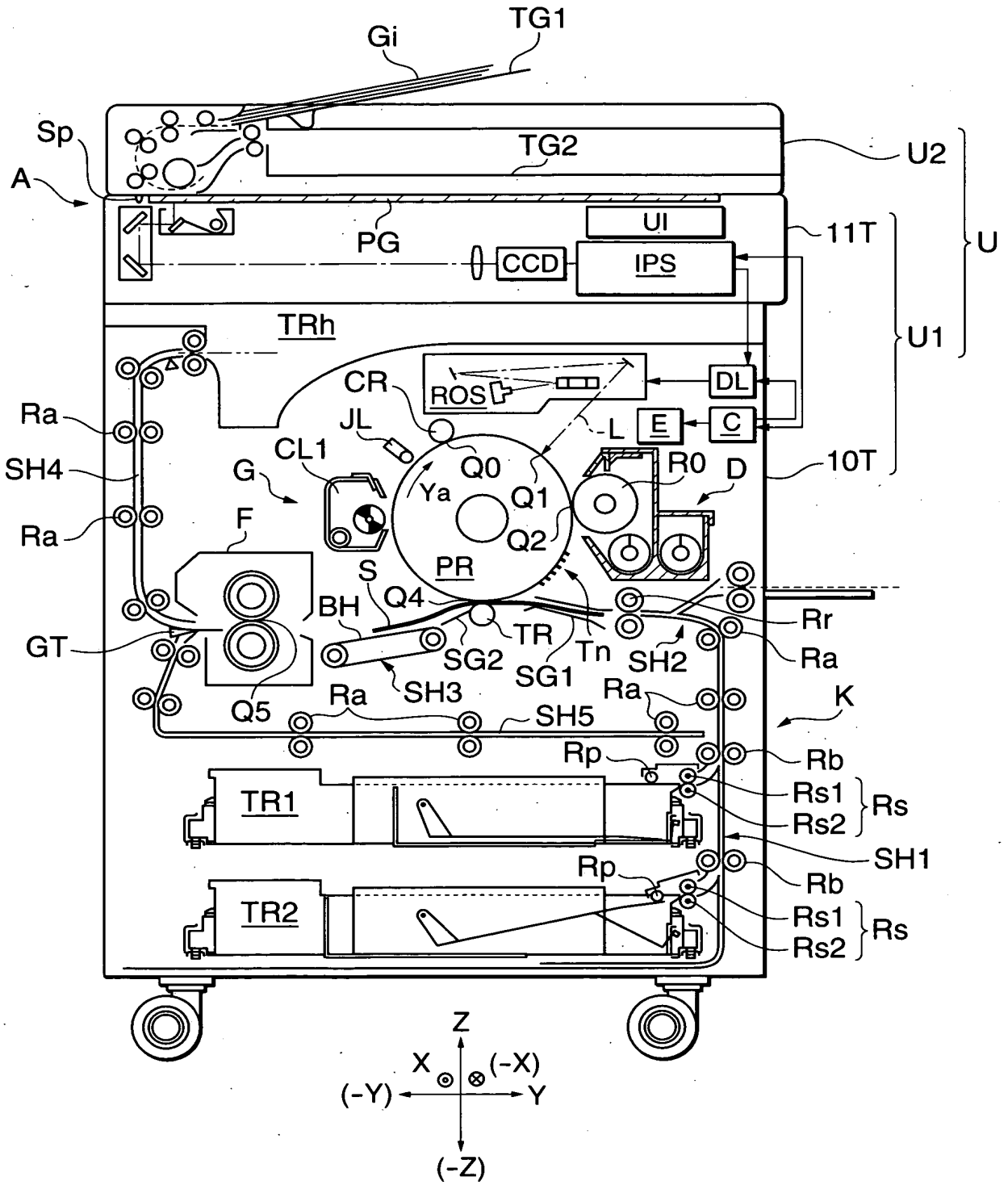
PATENT & TRADEMARK OFFICE

FIG. 1



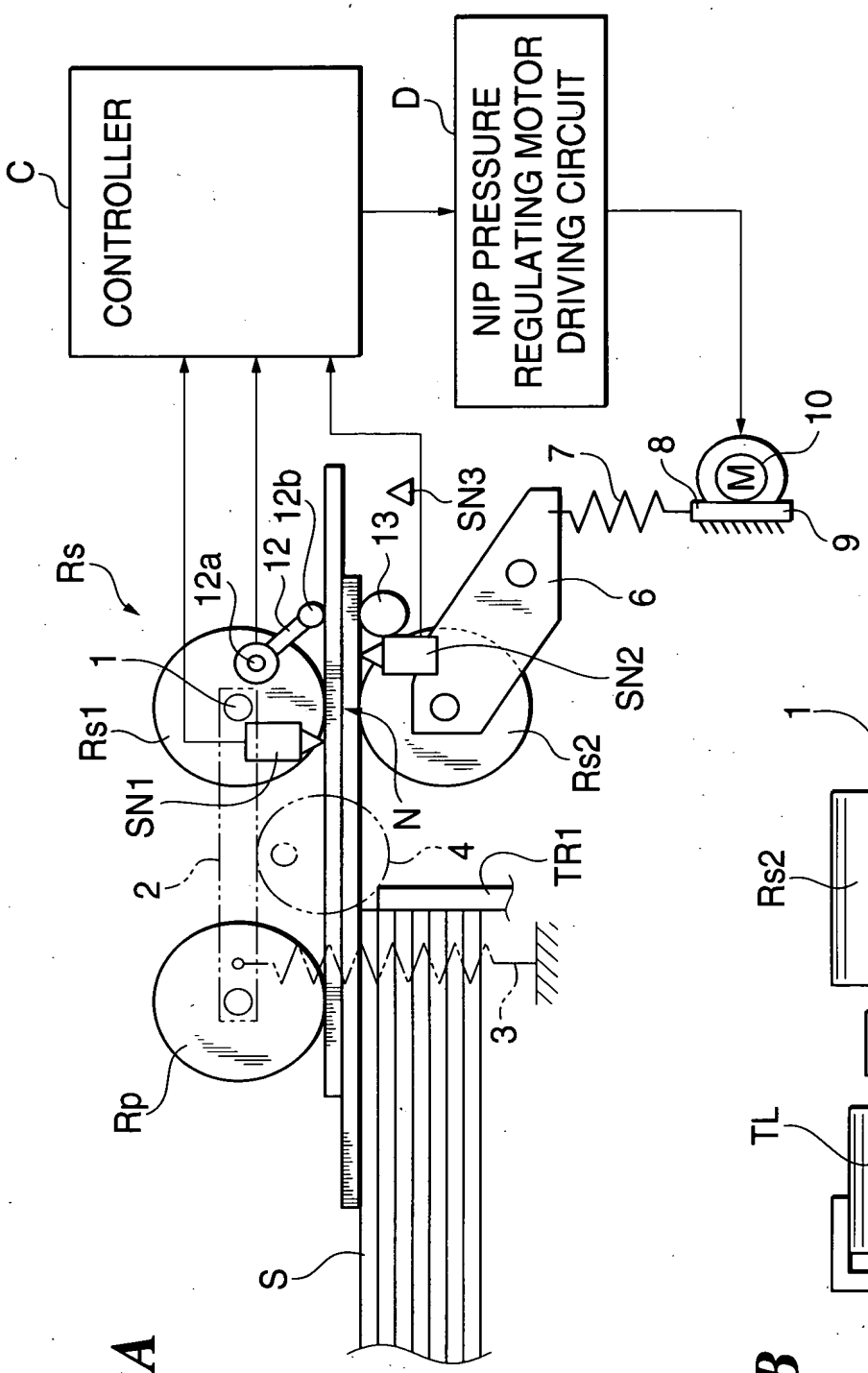

C
CONTROLLER
D
NIP PRESSURE REGULATING MOTOR DRIVING CIRCUIT
Rs
12a
12
12b
13
SN3
7
8
10
M
9
6
SN2
1
Rs1
SN1
Rs2
N
2
4
TR1
3
Rp
S

FIG. 2A

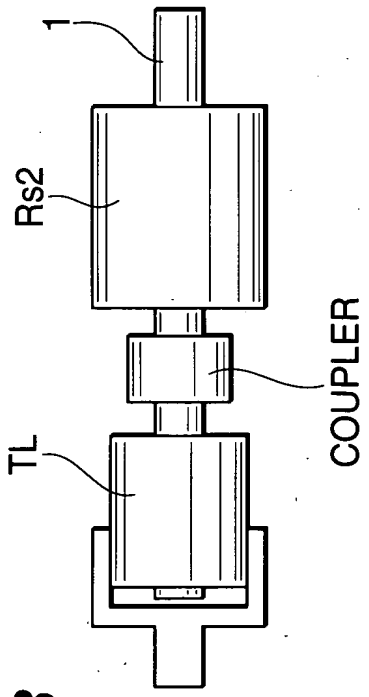

1
Rs2
COUPLER
TL

FIG. 2B

FIG. 3B

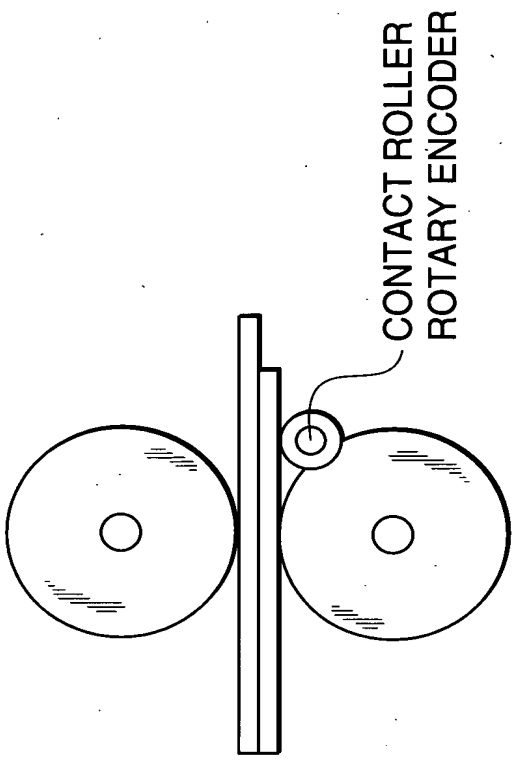


FIG. 3A

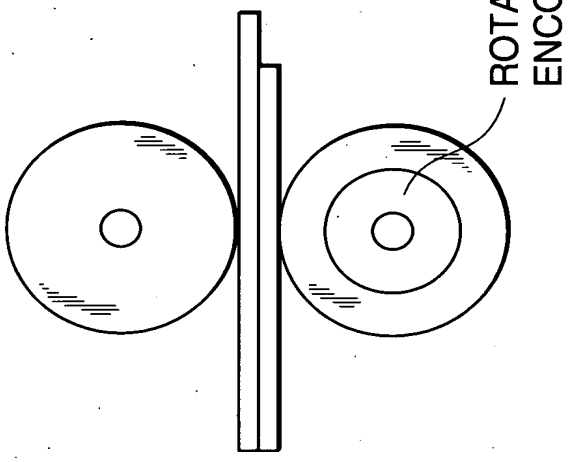


FIG. 4

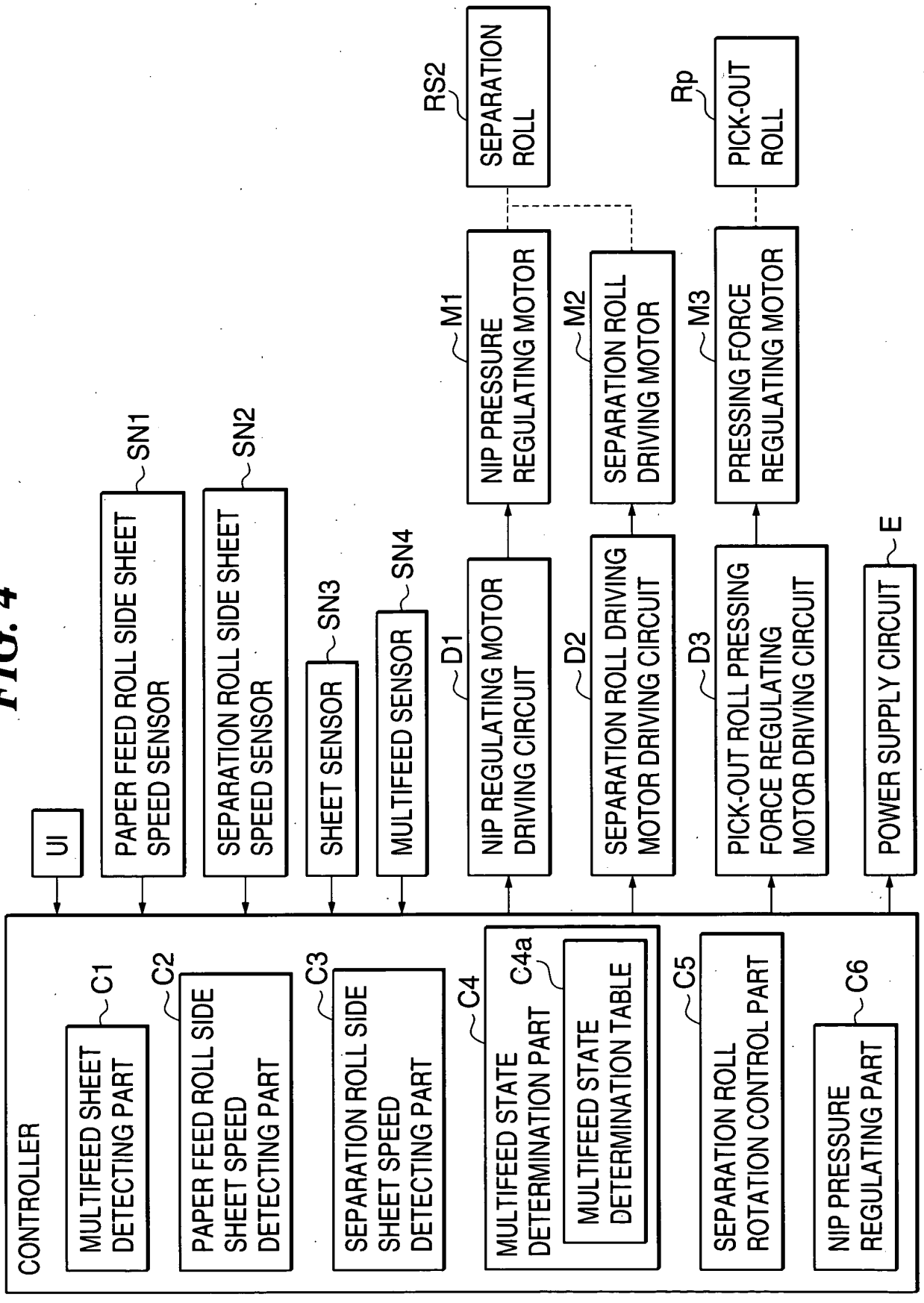

CONTROLLER
MULTIFEED SHEET DETECTING PART
C1
PAPER FEED ROLL SIDE SHEET SPEED DETECTING PART
C2
SEPARATION ROLL SIDE SHEET SPEED DETECTING PART
C3
MULTIFEED STATE DETERMINATION PART
C4
MULTIFEED STATE DETERMINATION TABLE
C4a
SEPARATION ROLL ROTATION CONTROL PART
C5
NIP PRESSURE REGULATING PART
C6
UI
PAPER FEED ROLL SIDE SHEET SPEED SENSOR
SN1
SEPARATION ROLL SIDE SHEET SPEED SENSOR
SN2
SHEET SENSOR
SN3
MULTIFEED SENSOR
SN4
NIP REGULATING MOTOR DRIVING CIRCUIT
D1
SEPARATION ROLL DRIVING MOTOR DRIVING CIRCUIT
D2
PICK-OUT ROLL PRESSING FORCE REGULATING MOTOR DRIVING CIRCUIT
D3
POWER SUPPLY CIRCUIT
E
NIP PRESSURE REGULATING MOTOR
M1
SEPARATION ROLL DRIVING MOTOR
M2
PRESSING FORCE REGULATING MOTOR
M3
SEPARATION ROLL
RS2
PICK-OUT ROLL
Rp

FIG. 5

SHEET MULTIFEED STATE DETERMINATION TABLE C5a

No.	MULTIFEED SENSOR SN4	SPEED SENSOR B DETECTING SPEED V1, V2 OF SN 1, SN2	DETERMINATION
1	OFF	V2 = V1	NORMAL (ONLY ONE SHEET IS TRANSPORTED)
2	ON	V2 = 0	NORMAL (SECOND SHEET IS STOPPED)
3	ON	V2 < 0	NORMAL (SECOND SHEET IS PUSHED BACK)
4	ON	V2 = V1	MULTIFEED (CONTACT STATE)
5	ON	V1 > V2 > 0	MULTIFEED (IMPERFECT SEPARATION)

Replacement Sheets

FIG. 6

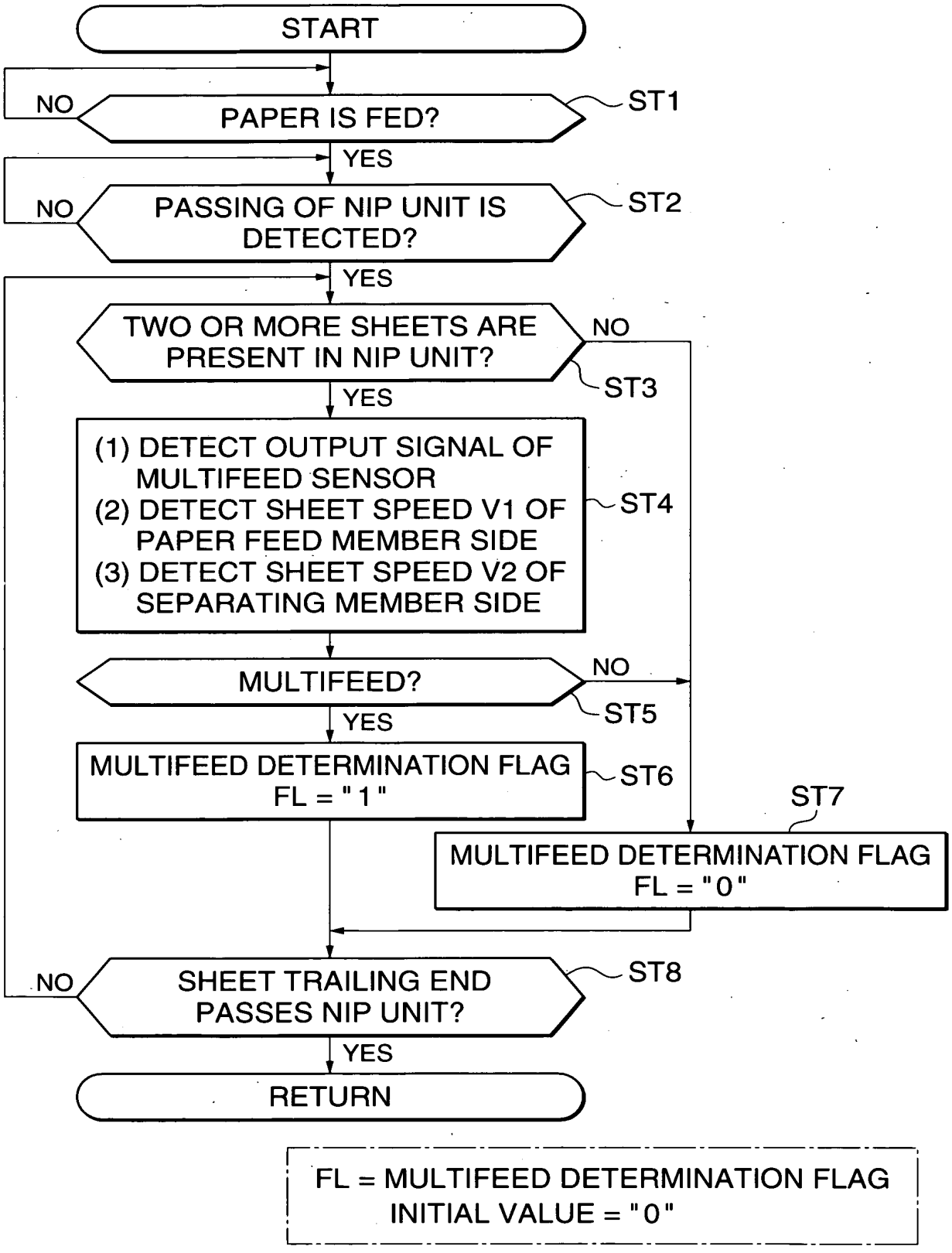
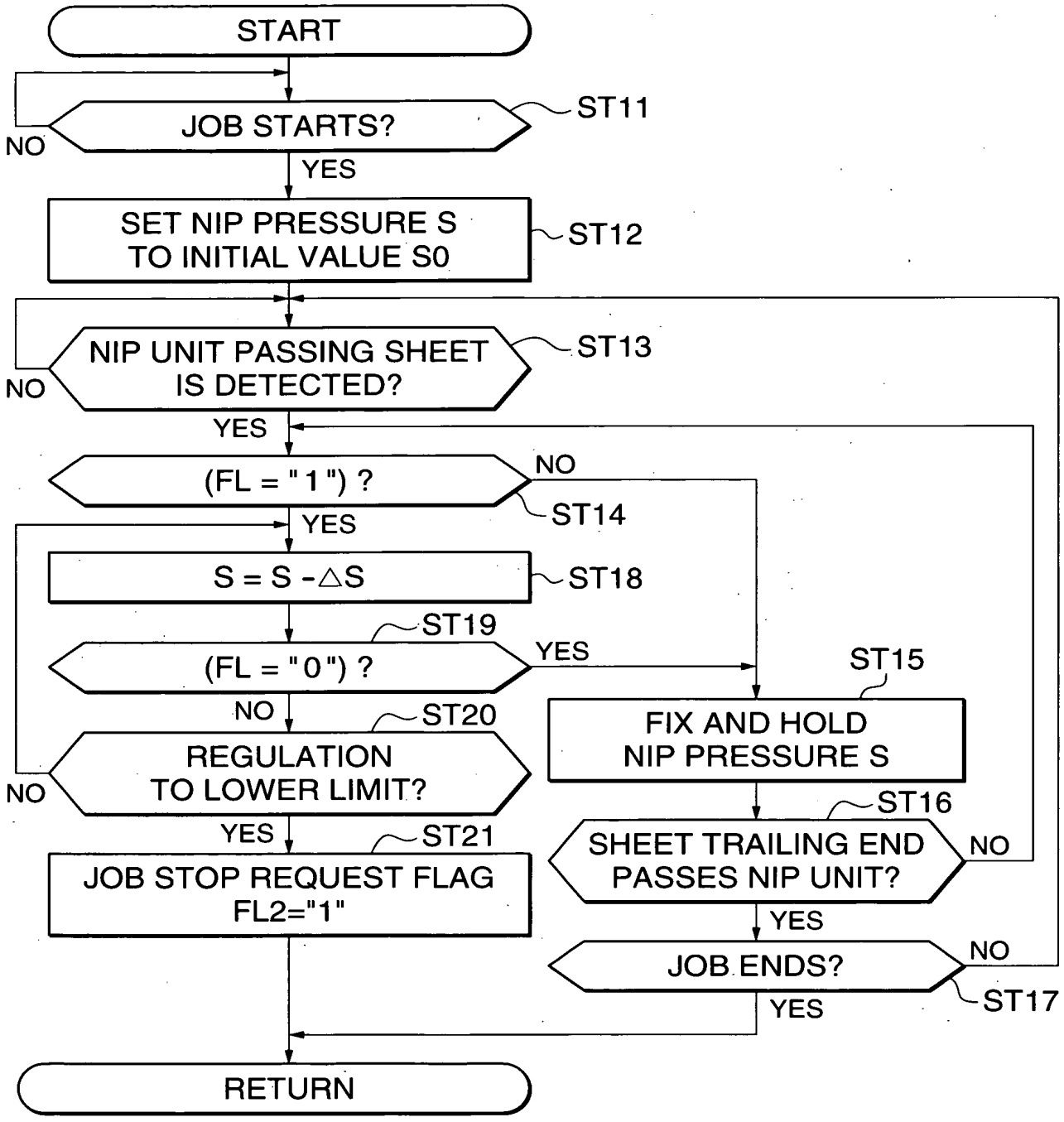
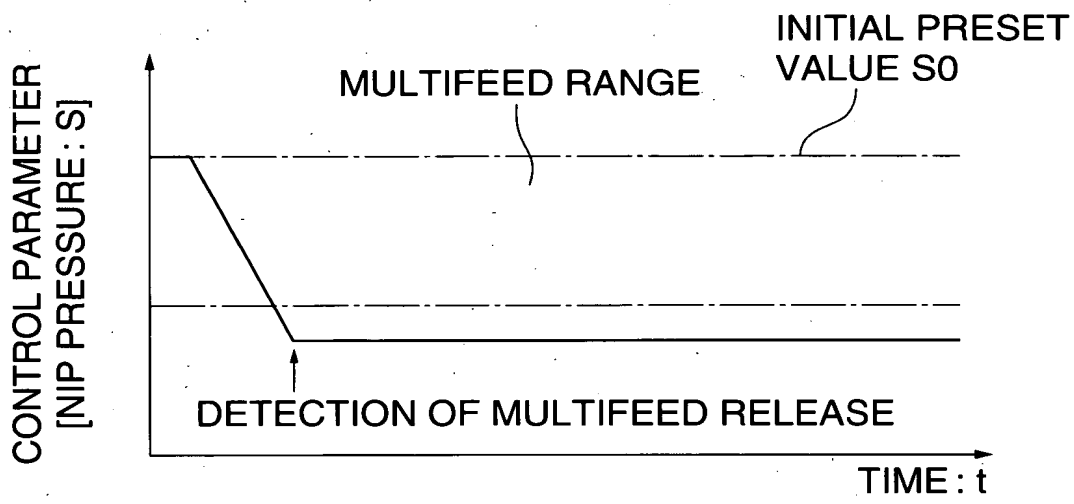

START
NO
PAPER IS FED?
ST1
YES
NO
PASSING OF NIP UNIT IS DETECTED?
ST2
YES
TWO OR MORE SHEETS ARE PRESENT IN NIP UNIT?
NO
ST3
YES
(1) DETECT OUTPUT SIGNAL OF MULTIFEED SENSOR
(2) DETECT SHEET SPEED V1 OF PAPER FEED MEMBER SIDE
(3) DETECT SHEET SPEED V2 OF SEPARATING MEMBER SIDE
ST4
MULTIFEED?
NO
ST5
YES
MULTIFEED DETERMINATION FLAG FL = "1"
ST6
ST7
MULTIFEED DETERMINATION FLAG FL = "0"
NO
SHEET TRAILING END PASSES NIP UNIT?
ST8
YES
RETURN
FL = MULTIFEED DETERMINATION FLAG
INITIAL VALUE = "0"

FIG. 7



FL = MULTIFEED DETERMINATION FLAG
INITIAL VALUE = "0"
FL2 = JOB STOP REQUEST FLAG
INITIAL VALUE = "0"

FIG. 8


INITIAL PRESET
VALUE S0
MULTIFEED RANGE
CONTROL PARAMETER
[NIP PRESSURE : S]
DETECTION OF MULTIFEED RELEASE
TIME : t